



Water Quality Report | 2003

AN ANNUAL REPORT ON SCOTTSDALE’S DRINKING WATER

YOUR DRINKING WATER

In 2002, your drinking water met or surpassed all federal and state drinking water standards. Scottsdale water is tested for over 100 substances the Environmental Protection Agency (EPA) has determined may be unhealthy to humans if consumed over extended periods of time above the health standards. Health standards are set to detect and eliminate unwanted substances long before they pose a health threat.

To ensure your tap water is safe to drink, the EPA issues regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for substances in commercial bottled water.

Sources of drinking water (both tap and bottled) include rivers, lakes, reservoirs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive materials, and can pick up substances resulting from the presence of animals or from human activity.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA’s Safe Drinking Water Hotline (800-426-4791).

WHERE YOUR WATER COMES FROM

Your water comes from both groundwater and surface water sources. Throughout the year you may receive water from any of these sources or a combination of water sources. Consumer demand, weather and the time of year are all factors that can influence where your water supply originates.

The city’s main surface water supply is from the Colorado River. This water is transported through the Central Arizona Project (CAP) aqueduct to the Scottsdale CAP Water Treatment Plant where it is treated to drinking water standards before being served to customers.

Scottsdale also receives surface water from the Salt River Project (SRP), which originates from the Verde and Salt Rivers. Under contract with the City of Phoenix, Scottsdale’s SRP supply is treated to drinking water standards and is piped to Scottsdale where it is served to customers.

Besides these surface water sources, Scottsdale water comes from groundwater stored deep below ground. The water is pumped from the ground through one of the city’s thirty-four wells and disinfected prior to entering the distribution system.

ATTENTION IMMUNO-COMPROMISED CITIZENS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy; persons who have undergone organ transplants; people with HIV/AIDS or other immune system disorders; and some elderly people and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. Environmental Protection Agency / Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

TREATING THE WATER TO DRINKING WATER QUALITY

City of Scottsdale Central Arizona Project (CAP) Water Treatment Plant

Water from the Colorado River is treated to drinking water standards at the city’s CAP Water Treatment Plant and then delivered to Scottsdale citizens.

Pre-treatment

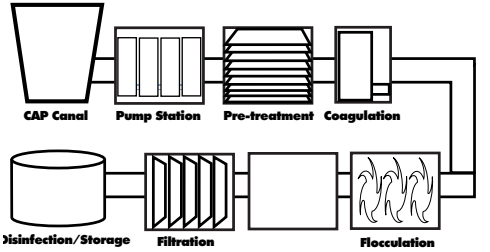
In large basins, the water is treated with activated carbon to control unpleasant tastes and odors.

Coagulation/Flocculation

Large mixers called flocculators and an additive called “alum” are used to draw small particles together to form larger heavier particles.

Sedimentation

The water is moved to basins where the large particles settle to the bottom where they are removed.



Filtration

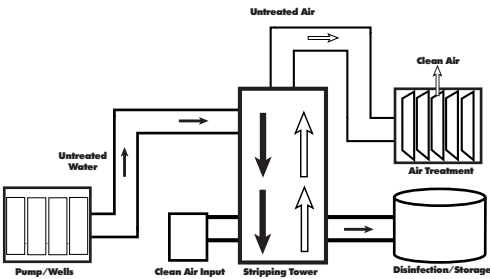
Very small particles that remain in the water are removed by a filtering system.

Disinfection

The final step is disinfection with chlorine. Water carrying a slight chlorine residual is distributed to water customers. A chlorine residual is required by regulation to ensure adequate disinfection in the distribution pipes.

Central Groundwater Treatment Facility (CGTF)

The North Indian Bend Wash (NIBW) Central Groundwater Treatment Facility (CGTF) treats water pumped from four groundwater wells that contain trichloroethylene (TCE), an industrial chemical. The CGTF facility located at Pima and Thomas roads was built by private companies deemed potentially responsible for contaminating the groundwater with TCE. The private companies are responsible for the cost of operating and maintaining the facility. The facility pumps groundwater from an area designated by EPA as the NIBW Superfund site. The groundwater is treated to federal and state drinking water standards, with regulatory oversight by EPA, Arizona Department of Environmental Quality, and Maricopa County. In 2002, the facility continued to remove TCE from the water to a non-detect level (less than 0.5 part per billion) which is far below the MCL of 5 ppb.



For more information on the NIBW Superfund site, please call EPA’s message line (800-231-3075). For more information on the NIBW Central Groundwater Treatment Facility, please contact the City of Scottsdale at (480) 312-8732.

HOW DOES THE NIBW CENTRAL GROUNDWATER TREATMENT FACILITY WORK?

- Water pumped from the four wells flows down through three treatment columns.
- The treatment facility uses a process that “strips” the water of contaminants by mixing the water with air. As the water and air mix, the contaminants attach themselves to the air.
- The air used in the treatment process is passed through activated carbon filters to remove the contaminants before the air is released.
- The treated water is then moved to a reservoir for disinfection before it is delivered to the Scottsdale drinking water system. The water in the reservoir is combined with other treated water source(s) to meet customer demand.

IMPORTANT DEFINITIONS

Contaminant

Any physical, chemical, biological, or radiological substance or matter in the water.

Maximum Contaminant Level Goal (MCLG)

The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Contaminant Level (MCL)

The highest level of a contaminant allowed in drinking water. MCLs are set by the EPA as close to MCLGs as feasible using the best available treatment technology.

Treatment Technique (TT)

A required process intended to reduce the level of a contaminant in drinking water.

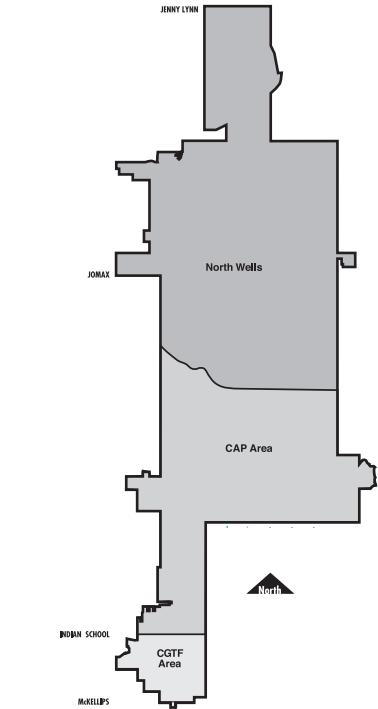
Action Level (AL)

The concentration of a contaminant, which if exceeded, triggers treatment or other requirements which a water system must follow.

Part per million (ppm) / Part per billion (ppb)

These units describe the levels of detected substances. One part per million can be described as one drop of water in 55 gallons. One part per billion is one drop of water in 55,000 gallons.

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- North Area supplied by groundwater wells*
- CAP Area supplied by CAP Water Treatment Plant and groundwater wells
- CGTF Area supplied by treated water from CGTF & supplemented treated water from City of Phoenix

- CONTAMINANTS THAT MAY BE PRESENT IN SOURCE WATER INCLUDE:
- Microbial Contaminants including viruses, bacteria or parasites (such as Cryptosporidium or Giardia), which may come from agricultural or livestock operations and wildlife.
 - Inorganic contaminants such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic waste water discharges, oil and gas production, mining or farming.
 - Pesticides and herbicides that may come from a variety of sources such as agriculture, storm water runoff and residential uses.
 - Organic chemical contaminants including synthetic and volatile organic compounds, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

KEY
ND = non-detectable
(the substance was analyzed but not detected)
NA = non-applicable

- Radiochemical contaminants which occur naturally or result from oil and gas production and mining activities.
- The results of Scottsdale’s water quality analysis are contained in the following tables. The water service areas are divided into three different zones; CAP Area, Central Groundwater Treatment Facility Area and North Area Wells Area. Use the map to determine what area you receive your water from and refer to the tables for your water quality results. Scottsdale water is tested for over 100 substances. However, only the substances that are detected in the water are listed in this report. A complete list of all substances the city monitors is available upon request.
- * In the Summer of 2002, delivery of treated CAP water began throughout the entire North Area region.*

2002 DETECTED RESULTS

2002 INORGANICS							
SUBSTANCE	UNIT	MCL	MCLG	CAP Range	CGTF Range	NORTH AREA Range	Likely source in drinking water
Arsenic*	ppb	50	NA	ND-25	4-10	8-24	Naturally occurring in soil.
Barium	ppb	2000	2000	11-11.5	34-370	2-285	Naturally occurring in soil.
Chromium	ppb	100	100	ND-77	ND	ND-46	Naturally occurring in soil.
Fluoride	ppm	4	4	0.3-1.5	0.4-0.6	0.4-1.4	Naturally occurring in soil.
Nitrate (as N)**	ppm	10	10	ND-5	ND-5	ND-4	Run off from fertilizer use; Leaching from septic

2002 ORGANICS										
SUBSTANCE	UNIT	MCL	MCLG	CAP Average	Range	CGTF Average	Range	NORTH AREA Average	Range	Likely source in drinking water
Bromodichloromethane	ppb	NA	NA	6.3	ND-8.63	2.9	2.17-4.37	1.53	ND-1.53	Byproduct of drinking water chlorination
Bromoform	ppb	NA	NA	1.2	ND-2.05	0.37	3.55-5.09	4.64	ND-4.64	Byproduct of drinking water chlorination
Chloroform	ppb	NA	NA	2.8	ND-4.01	2.8	1.88-4.55	2.00	ND-2.00	Byproduct of drinking water chlorination
Dibromochloromethane	ppb	NA	NA	5.12	ND-10.2	4.26	3.41-5.61	1.34	ND-1.34	Byproduct of drinking water chlorination
Carbon Tetrachloride	ppb	5	NA	0.6	ND-0.6	ND	ND	ND	ND	Discharge from chemical plants/industrial activities
Xylenes, Total	ppb	5	NA	0.6	ND-0.6	ND	ND	ND	ND	Discharge from petroleum or chemical factories
Dalapon	ppb	200	NA	ND	ND	1	ND-1	ND	ND	Runoff from herbicide used on rights of way
Di(2-ethylhexyl)phthalate	ppb	6	NA	1	ND-1	ND	ND	ND	ND-2.1	Discharge from rubber and chemical factories
2,4 Dichlorophenoxyacetic Acid	ppb	70	NA	ND	ND	ND	ND-0.21	ND	ND	Runoff from herbicide used on row crops

2002 RADIOCHEMICALS ***										
SUBSTANCE	UNIT	MCL	MCLG	CAP Range	High Avg.	CGTF Range	High Avg.	NORTH AREA Range	High Avg.	Likely source in drinking water
Gross Alpha	pCi/L	15	0	ND-4.7	2.7	ND-4.9	2.4	0.2-4.9	3.3	Naturally occurring in soil.
Radium 226	pCi/L	5	0	ND-1.6	1.6	ND-0.7	0.85	ND-1.0	0.65	Naturally occurring in soil.
Radium 228	pCi/L	5	0	ND-1.8	1.8	ND-1.0	1.0	ND-0.9	0.70	Naturally occurring in soil.
Uranium	pCi/L	30	0	ND-5.4	5.3	ND-7.2	4.0	ND-7.6	6.2	Naturally occurring in soil.

** Arsenic is a naturally occurring mineral commonly found in water due to erosion from rocks and soil. Some people who drink water containing arsenic in excess of the arsenic standard or Maximum Contaminant Level over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.*

*** Nitrate is an inorganic substance that is monitored due to run off from fertilizer use. Nitrate in drinking water at levels greater than 10 ppm is a health risk for infants at less than six months of age. In 2002, the highest nitrate level detected in Scottsdale water was 5 ppm. High nitrate levels above 10 ppm in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time due to rain-fall or agricultural activity. If you are caring for an infant you should seek advice from your health care provider.*

****Due to the upcoming radiochemical rule, the City of Scottsdale monitored for Gross Alpha, Radium 226, Radium 228, and Uranium to satisfy initial monitoring that may be grandfathered.*

2002 DETECTED SECONDARY STANDARDS

Secondary inorganic substances do not have an MCL and are measured voluntarily because these substances primarily relate to the taste, odor, or appearance of drinking water. These inorganic substances are found naturally in the soil.

2002 Secondary Inorganics						
Substance	Unit	MCL	MCLG	CAP Range	CGTF Range	North Area Range
Alkalinity	ppm	NA	NA	114 -200	168 -270	166 - 254
Calcium	ppm	NA	NA	13.9 - 72.0	54.1 - 56.7	20.8 - 56.6
Chloride	ppm	NA	NA	23 - 221	283 - 349	18 - 24
Copper	ppm	NA	NA	ND - 0.234	ND	ND - 0.018
Hardness, Total	ppm	NA	NA	86.9 - 298	273 - 353	110 - 233
	grains/gallon	NA	NA	5.1 -17.4	15.9 - 20.6	6.4 - 13.6
Iron	ppm	NA	NA	ND - 0.478	ND - 0.260	ND - 0.025
Magnesium	ppm	NA	NA	10.9 - 29.1	33.4 - 50.8	13.4 - 22.4
pH	Std. Unit	NA	NA	7.10 - 8.52	7.31 - 8.10	6.91 - 7.98
Sodium	ppm	NA	NA	36 -163	50 - 150	43 - 56
Sulfate	ppm	NA	NA	12 - 256	62 - 101	15 - 20
Temperature	°C	NA	NA	11.1 - 39.2	16.9 - 31.4	17.6 - 37.0
	°F	NA	NA	51.9 - 102.5	62.4 - 88.5	63.6 - 98.6
Total Dissolved Solids	ppm	NA	NA	NA 220 - 580	390 - 780	250 - 450
Zinc	ppm	NA	NA	ND - 0.028	ND - 0.137	ND - 0.068

2002 TURBIDITY RESULTS AFTER TREATMENT AT THE CAP WATER TREATMENT PLANT

Turbidity is a measure of clarity in the water and is reported as Nephelometric Turbidity Units (NTU). It is caused by suspended matter such as organic and inorganic matter, silt, algae or tiny microorganisms. Turbidity is a good indicator of the effectiveness of the water treatment process. A treatment technique standard applies instead of an MCL. In accordance with the Interim Enhanced Surface Water Treatment Rule (IESWTR) the city has collected continuous turbidity samples from individual filters at the water treatment plant. All samples collected were in compliance with the regulation.

Treatment Technique
No turbidity measurement can be above 1 NTU at any time. At least 95% of turbidity measurements of any month must be less than or equal to 0.3 NTU.

MCLG
NA

Highest Measurement
0.31 NTU

Lowest Monthly Percentage
99% of monthly samples met treatment technique

Likely source in drinking water
Soil Runoff

2002 RESULTS OF SAMPLES COLLECTED IN THE DISTRIBUTION SYSTEM

Microbial, Disinfection Residual and Disinfection Byproduct samples are collected throughout the city at dedicated sampling stations. These distribution system samples are representative of water delivered to homes and businesses.

Drinking water is treated with chlorine to ensure adequate microbial disinfection. Every month throughout the city over 150 samples are collected to ensure adequate disinfection and verify the absence of microbes within the distribution system pipes. Scottsdale’s targeted goal is to have a chlorine residual between 0.8 ppm and 1.2 ppm in all of the monthly samples. When chlorine residuals are outside the preferred range, the city makes the appropriate adjustments to return the residual to the preferred range.

Disinfection Byproducts are formed as a result of a chemical reaction between chlorine and naturally occurring organic matter in the water. The disinfection process is carefully controlled so that disinfection is effective, while keeping levels of disinfection byproducts as low as possible.

2002 DISINFECTION BYPRODUCT MONITORING										
Substance	Unit	MCL	MCLG	CAP Area		CGTF Area		North Area		Likely Source in Drinking Water
				Highest Annual Average	Range	Highest Annual Average	Range	Highest Annual Average	Range	
Total Trihalomethanes	ppb	80	0	62	31-94	63	3-113	65	4-101	Byproduct of drinking water chlorination
Haloacetic Acids	ppb	60	NA	20	1 - 41	13	ND- 18	15	ND - 24	Byproduct of drinking water chlorination

2002 Microbial Monitoring				
Substance	MCL	MCLG	Entire Distribution System	Likely Source in Drinking Water
Total Coliform	Presence in no more than 5% of monthly samples	0	Highest monthly percentage of positive Total Coliform Samples: 0.006%	Naturally present in the environment

2002 RESULTS OF LEAD AND COPPER MONITORING IN RESIDENTIAL HOUSEHOLDS

Lead and copper are used to make household plumbing fixtures and pipes. Lead and copper may leach from faucets or plumbing components into water when the water stands in pipes for several hours or more. Leaching may also occur in copper pipes joined with lead-based solder. Because the water in your pipes can pick up these metals, installation of lead solder, pipes and fittings was banned in 1986. The lead and copper levels reported are from water faucets inside 52 Scottsdale homes that were built before the lead ban.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. Lead levels at your home may be higher than other homes as a result of materials used in your home’s plumbing. If you are concerned about elevated lead levels you may want to have your water tested. If you have elevated levels of lead in your home run your faucet when the water has not been used for more than six hours and use only cold water for consumption. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

2002 Lead and Copper Results					
Substance	Units	Action Level (AL)	MCLG	Amount Detected	Likely Sources in Drinking Water
Lead	ppb	90% of homes tested must have lead levels less than 15 ppb	0	90% of the homes tested had lead levels less than 2 ppb	Corrosion of household plumbing
Lead from city water sources	ppb	NA	NA	ND	Naturally occurring in soil
Copper	ppm	90% of homes tested must have copper levels less than 1.3 ppm	1.3	90% of the homes tested had copper levels less than 0.23 ppm	Naturally occurring in soil
Copper from city water sources	ppm	NA	NA	ND-0.028	Naturally occurring in soil

2002 RESULTS OF UNREGULATED CONTAMINANT MONITORING

Scottsdale is required to monitor for List 1 Contaminants under the Unregulated Contaminant Monitoring Rule (UCMR) during one calendar year between 2001 and 2003. List 1 consists of 12 chemical contaminants. The data generated by the UCMR will be used to evaluate and prioritize contaminants on the Drinking Water Contaminant Candidate List, a list of contaminants EPA is considering for possible new drinking water standards.

SUBSTANCE	UNIT	MCL	MCLG	CAP AREA	CGTF AREA	NORTH AREA	LIKELY SOURCES IN DRINKING WATER
Perchlorate*	ppb	NA	NA	ND-6.9	ND	ND	*Man-made inorganic salt, which is used as a component of solid rocket fuel, munitions and in the pyrotechnics fireworks industry
2,4-dinitrotoluene	ppb	NA	NA	ND	ND	ND	
2,6-dinitrotoluene	ppb	NA	NA	ND	ND	ND	
Acetochlor	ppb	NA	NA	ND	ND	ND	
DCPA mono-acid degredate	ppb	NA	NA	ND	ND	ND	
DCPA di-acid degradate	ppb	NA	NA	ND	ND	ND	
4,4'- DDE	ppb	NA	NA	ND	ND	ND	
EPTC	ppb	NA	NA	ND	ND	ND	
Molinate	ppb	NA	NA	ND	ND	ND	
MTBE	ppb	NA	NA	ND	ND	ND	
Nitrobenzene	ppb	NA	NA	ND	ND	ND	
Terbacil	ppb	NA	NA	ND	ND	ND	

UPCOMING DRINKING WATER REGULATIONS

Arsenic

Presently the arsenic standard is set at 50 ppb. Although Scottsdale’s drinking water contains low levels of arsenic, it fully complies with EPA’s standard for arsenic. In January 2001, the EPA lowered the arsenic standard from 50 ppb to 10 ppb, with an effective date of January 2006. In preparation for the compliance date, Scottsdale is progressively demonstrating the best available technologies to remove the naturally occurring arsenic from the city’s water sources.

Radon

Radon is a naturally occurring radioactive gas that people can not see, taste or smell. Breathing elevated levels of radon in indoor air has been linked to lung cancer. While radon is primarily released to the air from the soil and can migrate into a building through the foundation, radon can also be released into the air from tap water. However, it is estimated that less than two percent of radon in the air comes from the drinking water.

Preparing for a pending regulation, Scottsdale collected radon samples from wells and treatment plants in 1999 through 2000. Sample results varied

depending on the water source, ranging from non-detect to 1,110 picocuries per liter (pCi/L). The State has the option to adopt a program to address the health risks from radon in indoor air with a proposed alternate drinking water standard of 4,000 pCi/L. Additional monitoring will occur once the rule is finalized.

If you are concerned about radon in your home or office, test the air in the building. Testing is inexpensive and easy and there are simple ways to fix a radon problem that are not too costly. For additional information, call EPA’s Radon Hotline (800-SOS-RADON).

WHERE TO LEARN MORE ABOUT YOUR DRINKING WATER

City of Scottsdale Water Quality Staff
480-312-8732
480-312-0961 TDD

City of Scottsdale Water Operations & Conservation
(main breaks, etc.)
480-312-5650

City of Scottsdale Water Quality web site
www.scottsdaleaz.gov/water/quality
United States Environmental Protection Agency’s Safe Drinking Water Hotline
800-426-4791
www.epa.gov/safewater/

Arizona Department of Environmental Quality
602-771-2300
www.adeq.state.az.us/environ/water/index.html

Maricopa County Environmental Services Department
602-506-6666
www.maricopa.gov/envsvc/Wwmd.asp



Tap into Quality
www.tapintoquality.com
Water-related topics may be discussed at City Council meetings or other public forums and we welcome your attendance. Meeting notices are posted in the “Pride” utility bill insert and are posted on the city’s web site at www.ScottsdaleAZ.gov.

For specific water quality questions call Dan Morales (480) 312-8748.

Este informe contiene informacion muy importante sobre su agua potable. Si desea una copia de este informe en espanol o tiene alguna pregunta sobre el, por favor llame a (480) 312-5592.

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